

## **CLASS 301, LAND VEHICLES: WHEELS AND AXLES**

### **SECTION I - CLASS DEFINITION**

This class includes the elementary structure of a running-gear for a land vehicle, that is, commonly known as a "wheel" or an "axle", per se. The combination of a "significant" wheel or axle with "nominal" other structure, i.e., wherein the wheel or axle comprises the dominant feature or essential part, is also found in this class.

### **SECTION II - LINES WITH OTHER CLASSES AND WITHIN THIS CLASS**

(1) This class is subordinate to Class 280, Land Vehicles, and distinguishes therefrom by the above definition.

(2) This class is subordinate to Class 180, Motor Vehicles. The broader or more comprehensive combinations of cooperating structure of a wheel and axle with other elements of a motor-vehicle are classified in Class 180. Such cooperating structure on the wheel and axle is found in this class (301) only where its modification is for wheel and axle structure purposes alone.

(3) The combination of a detailed wheel with a detailed brake is found in Class 301. A brake with only enough wheel structure to support the brake is found in Class 188, Brakes.

(4) A wheel or the combination of a wheel with a resilient tire or with a resilient wheel component is normally found in Class 301. A resilient tire, a resilient wheel, or a resilient wheel component is found in Class 152. For example, a resilient tire with a rim including details of the rim allowing the tire to be seated thereon is found in Class 152, but it is found in Class 301 if further including mounting structure for supporting that structure on a bearing hub. A traction-increasing device supported by a wheel, even though combined with a resilient tire, is found in Class 301, but another traction-increasing device operative to engage the tread of the tire and permit resilient operation thereof is found in Class 152.

(5) A device which functions as a transportation means for a vehicle, but which is not a true wheel, is found in Class 180, Motor Vehicles, subclasses 7.1+; and Class 305, Wheel Substitutes for Land Vehicles.

## **SECTION III - REFERENCES TO OTHER CLASSES**

### **SEE OR SEARCH CLASS:**

- 29, Metal Working, subclasses 894.3+ for a process of making (including assembling) a wheel or wheel part.
- 74, Machine Element or Mechanism, for a casing for an axle; or for an axle (especially a motor vehicle axle) which involves improvement in the gear casing or in the gearing. An axle housing, per se (which may be recited as an "axle") is found in Class 301.
- 152, Resilient Tires and Wheels (see Lines With Other Classes, 4, above).
- 180, Motor Vehicles (see Note 2 and Lines With Other Classes and With This Class, above).
- 280, Land Vehicles, for a vehicle riding on a runner(s) or for a runner, per se. (see Lines With Other Classes, (1) above.)
- 305, Wheel Substitutes for Land Vehicles, subclass 7 for a rigid circular track provided with a wheel or roller within the track the axis of which is eccentrically positioned with relation to the axis of the track, said wheel or roller being adapted to roll on a lower portion of the track, and subclasses 124+ for wheels especially modified to be used in flexible track apparatus for land vehicles. For a patent claiming a wheel, per se, to be placed in Class 305 the wheel as disclosed must include structure which coacts with a track part, such as a flanged rim, or a grooved rim which structure is adapted to interengage with a portion of a flexible track. A wheel which does not incorporate such structure, even though disclosed as being a flexible track-supporting wheel, is classified in this class (301).
- 384, Bearings, for a vehicle wheel bearing.
- 474, Endless Belt Power Transmission Systems or Components, particularly subclasses 166+ for a friction drive pulley or guide roll.

### **SUBCLASSES**

- 1 This subclass is indented under the class definition. Combination involving combined modification of both wheel and axle or modification of one which affects the operation of the other.

**2** This subclass is indented under subclass 1. Combination having spring element to cushion relative lateral movement of the wheel.

**2.5** This subclass is indented under subclass 1. Combination of wheel, axle and driving pedal crank, used chiefly in bicycle propulsion.

**SEE OR SEARCH CLASS:**

74, Machine Element or Mechanism, subclasses 594.1+ for a journal bearing with a crank and pedal.  
384, Bearings, subclass 431 for a plain bearing and subclass 458 for an anti-friction bearing for a pedal type crank.

**5.1 WHEEL:**

This subclass is indented under the class definition. Structure comprising that part of a running-gear commonly known as a wheel, i.e., a member having a round periphery, adapted to turn about its center and to supportingly carry a vehicle over the land (1) by rolling engagement of the periphery with the land or (2) by rolling engagement of a tire on the periphery with the land.

**SEE OR SEARCH CLASS:**

16, Miscellaneous Hardware, subclasses 18+ for a caster including a wheel.  
249, Static Molds, subclass 56 for mold for forming a vehicle wheel.  
428, Stock Material or Miscellaneous Articles, subclass 579 for a metallic blank or circular shape and of width greater than its thickness.

**5.21 Balancing device:**

This subclass is indented under subclass 5.1. Wheel comprising (1) a wheel having provision to equalize the weight of one portion thereof with respect to another, or (2) a member particularly adapted to be used on a wheel to equalize the weight of one portion of the wheel with respect to another.

**SEE OR SEARCH THIS CLASS, SUBCLASS:**

53.5, for a weight added to a wheel to increase the traction thereof.

**SEE OR SEARCH CLASS:**

152, Resilient Tires and Wheels, subclass 154.1 for a resilient tire having provision to balance the tire (compared to means to balance the wheel or wheel and tire assembly found in this subclass.)

**5.22 Self-operating:**

This subclass is indented under subclass 5.21. Wheel wherein the balancing device includes provision to allow a portion thereof to relocate to effect weight equalization without outside impetus.

**5.23 With peripheral roller:**

This subclass is indented under subclass 5.1. Wheel combined with at least one additional member which is also adapted to function as a wheel, which additional member turns about a second axis, which second axis orbits about the first axis, i.e., the axis of the "primary" wheel.

**5.24 Having housing for tire inflation means:**

This subclass is indented under subclass 5.1. Wheel including structure for protecting a member intended to transmit a filling fluid to a hollow tire thereon.

**SEE OR SEARCH CLASS:**

152, Resilient Tires and Wheels, subclasses 450+ for an inflatable pneumatic tire or tire combined with a wheel, including a tire inflation means; and subclasses 427+ for an inflating means combined with a wheel.

**5.301 Skate wheels:**

This subclass is indented under subclass 5.1. Subject matter wherein the wheel is particularly adapted to use on a roller skate.

(1) Note. A roller skate wheel combined with a bearing is included in this subclass.

(2) Note. Wheels under this subclass include a wheel structure and any tire joined thereto.

## SEE OR SEARCH CLASS:

- 16, Miscellaneous Hardware, subclass 45 for a wheel particularly adapted to use on a caster.
- 152, Resilient Tires and Wheels, for a tire or wheel under that class definition which might be used on a roller skate.
- 280, Land Vehicles, subclass 11.19 for wheeled skates.
- 362, Illumination, subclass 500 for an illuminated wheel structure.
- 384, Bearings, for a skate bearing, per se.

**5.302 Traction increasing:**

This subclass is indented under subclass 5.301. Subject matter including provision for increasing the tractive effort thereof or for preventing slipping (or sluing) of the wheel from its intended direction of travel.

**5.303 Shape:**

This subclass is indented under subclass 5.302. Subject matter wherein the significance is attributed to the configuration of a traction surface of the wheel.

**5.304 Cushion:**

This subclass is indented under subclass 5.301. Subject matter wherein a part of the wheel is formed of an elastic or softer material to effectively prevent transmission of vibrations to a skate user.

**5.305 Mounting on axle or skate:**

This subclass is indented under subclass 5.301. Subject matter includes a specific structure for rotatably securing the wheel to an axle or skate.

**5.306 Hub having tire retention means:**

This subclass is indented under subclass 5.301. Subject matter wherein a central portion of the wheel includes a formation or a member which is adapted to engage and retain the tire.

## SEE OR SEARCH CLASS:

- 152, Resilient Tires and Wheels, subclass 323 for specific tire structure and subclasses 393 for tire reinforcing structure.

**5.307 Tire molded to hub:**

This subclass is indented under subclass 5.306. Subject matter wherein the tire is permanently

joined as an integral part of the central portion of the wheel.

**5.308 Plural diverse materials:**

This subclass is indented under subclass 5.301. Subject matter wherein the wheel is made of more than one material.

## SEE OR SEARCH CLASS:

- 152, Resilient Tires and Wheels, subclass 323 for tire cushion structure and subclasses 393 for tire reinforcing structure.

**5.309 Hub construction:**

This subclass is indented under subclass 5.301. Subject matter includes a structural arrangement of parts of the central portion of the wheel.

**5.7** This subclass is indented under subclass 5.3. Wheel having an antifriction bearing.

**6.1 With drive or brake attachment:**

This subclass is indented under subclass 5.1. Wheel combined with an element (1) which transmits force to the wheel to effect movement thereof or (2) which receives force from the wheel to prevent movement thereof.

## SEE OR SEARCH CLASS:

- 152, Resilient Tires and Wheels, subclass 153 for a cooling device for a resilient tire.
- 188, Brakes, for a brake for a wheel without "significant" recitation of a wheel. The combination of a "significant" brake with a "significant" wheel is included in this and the indented subclasses (301/6.1+).

**6.2 Aircraft wheel:**

This subclass is indented under subclass 6.1. Wheel particularly adapted to use on an aircraft to support that aircraft while on the ground.

**6.3 And with brake-cooling means:**

This subclass is indented under subclass 6.1. Wheel including provision to reduce the thermal level of the brake structure.

**6.4 Comprising means to utilize a fluid:**

This subclass is indented under subclass 6.3. Wheel wherein the provision to reduce the thermal level uses a contained flowable medium such as a gas or liquid to carry heat away from the brake.

- (1) Note. A cooling fin intended to transfer heat to passing air does not "contain" a flowable medium and, therefore, is not included herein.

**6.5 Drive means on wheel:**

This subclass is indented under subclass 6.1. Wheel combined with an element which transmits force to the wheel to effect movement thereof.

**6.6 Wheel supported on brake drum clear of hub:**

This subclass is indented under subclass 6.1. Wheel combined with a brake member intended to turn about the wheel axis, said member having a cylindrical friction surface thereon, which wheel is supported by the brake member without any other load-bearing attachment to the vehicle.

**6.7 Brake drum supported on wheel clear of hub:**

This subclass is indented under subclass 6.1. Wheel combined with a brake member intended to turn about the wheel axis, said member having a cylindrical friction surface thereon, which brake member is supported by the wheel member without any other load-bearing attachment to the vehicle.

**6.8 Disc brake:**

This subclass is indented under subclass 6.1. Wheel including a brake member intended to turn about the wheel axis, said member having an axially facing friction surface thereon.

**6.9 For cycle-type vehicle:**

This subclass is indented under subclass 6.1. Wheel particularly adapted to use on a two or three wheel bicycle or motorcycle.

**6.91 Having vibration damper or heat insulator:**

This subclass is indented under subclass 6.1. Wheel including (1) provision to eliminate regular, repetitive oscillations or (2) provision to prevent the transfer of heat.

**7** This subclass is indented under subclass 5.1. Wheel of the type usable on an ordinary wheelbarrow.

**8** This subclass is indented under subclass 5.1. Wheel having structure in addition to that of a conventional wheel for reinforcing any component part at any point.

**9.1 Detachable wheel section:**

This subclass is indented under subclass 5.1. Wheel having means whereby a substantial part of the wheel, e.g., not less than a demountable rim and tire, is removably secured to an inner part without removing the inner part from an attached position on the axle.

**9.2 With provision to permit positioning of rim laterally of hub:**

This subclass is indented under subclass 9.1. Wheel with means to allow the rim to be held on the supporting structure (hub) in a first axial position or alternatively in a second axial position.

**10.1 Demountable rim:**

This subclass is indented under subclass 9.1. Wheel wherein the detachable, substantial part comprises an annular member intended (1) to rollingly engage the ground or (2) to support a tire intended to rollingly engage the ground.

**11.1 Rim-securing means:**

This subclass is indented under subclass 10.1. Wheel having means to attach the rim to the periphery of a wheel body.

**11.2 With lock between rim and wheel body:**

This subclass is indented under subclass 11.1. Wheel combined with means distinct from the securing means to prevent separation of the rim and the wheel web.

**11.3 With spacer between rim and wheel body:**

This subclass is indented under subclass 11.1. Wheel combined with means distinct from the securing means to fill clearance between the

- radially inner surface of the rim and the radially outer surface of the wheel web.
- 12.1 Spoke secured:**  
This subclass is indented under subclass 11.1. Wheel wherein the rim is secured directly (i.e., without a separate felly) to the spokes of the wheel.
- 12.2 Radially movable spoke:**  
This subclass is indented under subclass 12.1. Wheel wherein the securing means comprises a spoke with at least a portion thereof repositionable outwardly from the axis.
- 13.1 Plural rims:**  
This subclass is indented under subclass 11.1. Wheel including more than one rim mounted on the wheel.
- SEE OR SEARCH CLASS:  
152, Resilient Tires and Wheels, subclass 376 for nondemountable plural rims each of which is particularly adapted for use with a resilient tire.
- 13.2 Dual rims:**  
This subclass is indented under subclass 13.1. Wheel including more than one rim of substantially equal radial extent positioned near each other along the wheel axis.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
36.1, for dual wheels.
- 14** This subclass is indented under subclass 11.1. Wheel wherein the means for securing the rim to the wheel can be operated to assist in removing the rim.
- 15** This subclass is indented under subclass 11.1. Wheel including a transplit rim, i.e., a rim of adjustable length so that the rim is secured to the wheel by contracting the rim about the periphery of the wheel.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
30+, for a demountable, transversely divided rim without securing means, generally.
- 16** This subclass is indented under subclass 11.1. Wheel wherein the portion located radially inside the rim includes a component that is movable radially outwardly to engage and secure the rim thereon.
- 17** This subclass is indented under subclass 11.1. Wheel wherein there is a bayonet-joint connection between the outer periphery of the wheel and the inner periphery of the rim.
- 18** This subclass is indented under subclass 11.1. Wheel wherein the rim is secured by a wedge operable to exert a radial pressure on the rim.
- 19** This subclass is indented under subclass 18. Wheel wherein the wedging-surfaces extend along the axis of the wheel.
- 20** This subclass is indented under subclass 19. Wheel wherein the wedge has movement discrete of that of both the rim and the wheel web.
- 21** This subclass is indented under subclass 20. Wheel wherein the wedge comprises a tapered, helical member that is rotated about its axis to effect movement thereof along its axis.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
28, for a wheel having a demountable rim secured by a radially extending latch bolt.
- 22** This subclass is indented under subclass 20. Wheel wherein the wedge is in the form of a ring extending around the periphery of the wheel.
- 23** This subclass is indented under subclass 11.1. Wheel wherein the securing means comprises a removable side ring.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
22, for a ring shaped wheel rim securing means comprising a wedge.
- 24** This subclass is indented under subclass 11.1. Wheel wherein the securing means comprises a removable side lug.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
18+, for a wheel wherein the rim is secured by a wedge operable to exert radial pressure on the rim.
- 25** This subclass is indented under subclass 11.1. Wheel wherein either the rim or the wheel-body carries a member capable of movement to lock the rim to the wheel-body.
- 26** This subclass is indented under subclass 25. Wheel wherein the securing means comprises a ring secured to a wheel element by means such that the ring can be moved to two positions, one locking the rim in place and the other in a position to release it.
- 27** This subclass is indented under subclass 26. Wheel wherein the securing ring includes a portion that is movable radially outwardly to engage and secure the rim to the wheel body.
- 28** This subclass is indented under subclass 25. Wheel wherein the latch comprises a helically ribbed member positioned with its axis extending away from the wheel axis, such that upon rotation about its axis the member is caused to move away from the wheel axis and secure the rim to the wheel body.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
21, for wheel having a removable rim secured to the wheel body by a radially acting bolt wedge.
- 29** This subclass is indented under subclass 25. Wheel wherein the latch is a pivoted element.
- 29.2** **Circumferentially divided rim:**  
This subclass is indented under subclass 11.1. Wheel having a demountable rim which is divided into plural axial sections, which rim is secured to the wheel body by bringing together the rim's sections.
- (1) Note. The structure of the rim is such that the sections can be separated only when there is no tire on the wheel.
- SEE OR SEARCH CLASS:  
152, Resilient Tires and Wheels, sub-classes 396+ for rim parts which are particularly adapted for use with a resilient tire, which rim parts are separable to facilitate removal of the tire.
- 30** This subclass is indented under subclass 9.1. Wheel wherein the demountable rim or a section thereof is divided by a cut generally parallel to the wheel axis.
- 30.2** **One section both transversely and circumferentially divided:**  
This subclass is indented under subclass 30. Wheel having a demountable rim which is divided into plural axial sections, which rim is secured to the wheel body by bringing together the rim's sections, wherein one axial section thereof is cut parallel to the wheel axis.
- 31** This subclass is indented under subclass 30. Wheel wherein the rim is divided by a plurality of transverse cuts.
- 32** This subclass is indented under subclass 31. Wheel wherein two sections of the rim are pivotally attached to each other.
- SEE OR SEARCH CLASS:  
152, Resilient Tires and Wheels, subclass 377 for a rim particularly adapted to receive a resilient tire, which rim includes a retracting wheel section.
- 33** This subclass is indented under subclass 30. Wheel wherein adjacent ends of the divided rim are provided with means for moving such ends into or out of aligned relation.
- SEE OR SEARCH CLASS:  
157, Wheelwright Machines, subclasses 1.35+ for a rim-breaking device which is not part of the rim and is intended to be removed therefrom during normal use of the rim.
- 34** This subclass is indented under subclass 33. Wheel wherein the adjacent ends of the rim are provided with tool-receiving means to be used to align the ends of the rim.

**35.1 Circumferentially divided rim:**

This subclass is indented under subclass 9.1. Wheel having a demountable rim which is divided into plural axial sections, which rim is secured to the wheel body by bringing together the rim's sections.

- (1) Note. The structure of the rim is such that the sections can be separated only when there is no tire on the wheel.

**SEE OR SEARCH CLASS:**

152, Resilient Tires and Wheels, subclasses 396+ for rim parts which are particularly adapted for use with a resilient tire, which rim parts are separable to facilitate removal of the tire.

**35.2 Rim sections held together by bayonet joint:**

This subclass is indented under subclass 35.1. Wheel wherein the axial sections are configured such that one is moved toward the other along the wheel axis, i.e., their axes, then rotated so that the sections interfit and cannot be separated without reversal of the movement.

**35.3 Rim sections held together by transversely divided locking ring:**

This subclass is indented under subclass 35.1. Wheel wherein the axial sections are configured to interfit with an annular member so that they cannot be separated without removal of the annular member, wherein the annular member is divided by a cut generally parallel to the wheel axis.

**35.51 Including means to prevent relative rotation between rim and wheel body:**

This subclass is indented under subclass 10.1. Wheel including structure adapted to interfit with the rim and the wheel web to secure the two members such that one will not turn about the wheel axis with respect to the other.

**35.52 Geared mounting mechanism:**

This subclass is indented under subclass 9.1. Wheel wherein the detachable section comprises a toothed rotary member which is intended to be used to effect securement of the wheel on supporting structure, e.g., on an axle.

**35.53 Artillery wheel with single-acting retaining means:**

This subclass is indented under subclass 9.1. Wheel which is particularly adapted to use in transporting ordnance and which includes a member for securing that wheel to supporting structure, such as an axle, by a single movement.

**35.54 Artillery wheel bolted to hub:**

This subclass is indented under subclass 9.1. Wheel which is particularly adapted to use in transporting ordnance and which is configured to be secured to supporting structure, such as an axle, by a helically ribbed member interfitting with the supporting structure.

**35.55 By central nut:**

This subclass is indented under subclass 35.54. Wheel wherein the helically ribbed member is concentric with the wheel axis.

**35.56 Wire-spoke wheel with single-acting mounting means:**

This subclass is indented under subclass 9.1. Wheel having the hub joined to the rim by a plurality of generally radially extending slender rods and including a member for securing that wheel to supporting structure, such as an axle, by a single movement.

**35.57 Wire-spoke wheel bolted to hub:**

This subclass is indented under subclass 9.1. Wheel having the hub joined to the rim by a plurality of generally radially extending rods and configured to be secured to supporting structure, such as an axle, by a helically ribbed member interfitting with the supporting structure.

**35.58 By central nut:**

This subclass is indented under subclass 35.57. Wheel wherein the helically ribbed member is concentric with the wheel axis.

**35.59 Spoke formations bolted to hub:**

This subclass is indented under subclass 9.1. Wheel having the hub joined to the rim by a member configured to appear to be a plurality of generally radially extending rods.

**35.61 Disc wheel with single-acting retaining means:**

This subclass is indented under subclass 9.1. Wheel having the hub joined to the rim by a generally flat, radially extending platelike member and including a member for securing that wheel to supporting structure, such as an axle, by a single movement.

**35.621 Disc wheel bolted to hub:**

This subclass is indented under subclass 9.1. Subject matter wherein the wheel having the hub joined to the rim by a generally flat, radially extending platelike member and configured to be secured to a supporting structure, such as an axle, by a threaded fastener interfitting with the supporting structure (i.e., a bolt).

**SEE OR SEARCH CLASS:**

411, Expanded, Threaded, Driven, Headed, Tool-deformed, or Locked-threaded Fastener, appropriate subclasses for specific nut or bolt structure.

**35.622 Multi-part nut:**

This subclass is indented under subclass 35.621. Subject matter includes a plurality of members having threaded holes designed to fit around and secure the bolt.

**35.623 Lug nut:**

This subclass is indented under subclass 9.1. Subject matter including a threaded means intended to interfit with a corresponding other threaded part of the wheel to secure the wheel to the axle.

**35.624 Lug nut retention means:**

This subclass is indented under subclass 35.623. Subject matter wherein the lug nut includes a member(e.g., spring) to keep the lug nut secured to the wheel.

**35.625 Lug nut engaging wheel element:**

This subclass is indented under subclass 35.623. Subject matter wherein a wheel member is shaped to engage the lug nut at lug nut opening.

**35.626 Disc reinforcing structure at lug bolt opening:**

This subclass is indented under subclass 9.1. Subject matter including an integral strength-

ening means provided as a part of a disc at a lug bolt opening to strengthen the disc around the immediate area of the opening.

**35.627 Centering means:**

This subclass is indented under subclass 9.1. Subject matter including means (i.e., template, pilot studs) for guiding a wheel onto a hub during wheel mounting.

**35.628 Dual wheel coupling:**

This subclass is indented under subclass 9.1. Subject matter wherein two independent discs are joined or arranged for mounting two wheels to the axle.

**35.629 With adaptor:**

This subclass is indented under subclass 9.1. Subject matter including means to facilitate the mounting of the wheel having a bolt hole pattern different from a bolt pattern of a vehicle axle flange to which the wheel is mounted.

**35.631 Variable bolt patterns accommodating means (e.g., inserts):**

This subclass is indented under subclass 35.629. Subject matter wherein the facilitating means includes a member with a bolt hole or a member capable of changing orientation is inserted into an oversized bolt hole of the wheel to accommodate the bolt pattern of the vehicle axle flange.

**35.632 Lug bolt opening reinforcement:**

This subclass is indented under subclass 9.1. Subject matter wherein a separate member is rigidly attached to a disc at a lug bolt aperture or the member is inserted through the lug bolt aperture to strengthen the aperture.

**35.63 By central nut:**

This subclass is indented under subclass 35.621. Wheel wherein the helically ribbed member is concentric with the wheel axis.

**36.1 Dual wheels:**

This subclass is indented under subclass 5.1. Plural wheels of substantially equal radial extent positioned near each other along a common wheel axis.



SEE OR SEARCH THIS CLASS, SUB-CLASS:

13.2, for a single wheel supporting dual demountable rims.

SEE OR SEARCH CLASS:

152, Resilient Tires and Wheels, subclass 376 for a wheel particularly adapted for receiving plural resilient tires.

### 36.2 **Relatively rotatable:**

This subclass is indented under subclass 36.1. Dual wheels wherein both turn about the same axis but may turn at different rates.

### 36.3 **With wear-preventing means therebetween:**

This subclass is indented under subclass 36.1. Dual wheels combined with a member fitting between the wheels to reduce abrasive deterioration of the wheels or of the tires thereon.

### 37.101 **With wheel cover:**

This subclass is indented under subclass 5.1. Subject matter wherein the wheel includes a facing member which is secured to the wheel and covers a substantial portion of the wheel for decorating or protecting the wheel.

- (1) Note. Included herein is a trim member which covers less than an entire wheel, e.g., a rim-covering rim ring.
- (2) Note. A wheel cover, per se, is included herein if particularly adapted for attachment to a vehicle wheel.
- (3) Note. A wheel may include a 'wheel hub' which is detachably secured to a 'bearing hub' and which is permanently attached to the radially innermost portion of the wheel body. A 'hub cap' covering the 'wheel hub' is included in this and the intended subclasses; whereas a 'hub cap' covering only the 'bearing hub' is in subclasses 108.1.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

108, for a member which engages and covers only the axial end of the hub of a wheel.

SEE OR SEARCH CLASS:

- 40, Card, Picture, or Sign Exhibiting, subclass 587 for an ornamental or sign-carrying member to be mounted on a wheel or axle of a land vehicle which does not rotate when the vehicle is in motion.
- 52, Static Structures (e.g., Buildings), subclass 716.5 for an in situ attached-type channel or trim strip for a fixed structure, generally.
- 280, Land Vehicles, subclass 156 for a wheel-attached dust or mud guard and subclass 160 for a wheel guard for attachment to a vehicle.
- D12, Transportation, subclass 204 for a design patent for a wheel.

### 37.102 **Fastening arrangements:**

This subclass is indented under subclass 37.101. Subject matter wherein the facing member comprises means for attaching the facing member to the wheel.

### 37.103 **Temporary wheel shield:**

This subclass is indented under subclass 37.101. Subject matter wherein the facing member covers a rim portion or a disc portion of the wheel during treatment of a tire or covers the tire during treatment of the disc or rim portion.

SEE OR SEARCH CLASS:

118, Coating Apparatus, subclass 504 for work surface shields, masks or protectors.

### 37.104 **With holding means:**

This subclass is indented under subclass 37.103. Subject matter wherein the protector includes a handle or means to grasp the facing member.

### 37.105 **Cover on back side of wheel:**

This subclass is indented under subclass 37.101. Subject matter wherein each side of the wheel is covered by separate facing member.

**37.106 Made of plural segments:**

This subclass is indented under subclass 37.101. Subject matter wherein the facing member is made of more than one separate portions.

SEE OR SEARCH THIS CLASS, SUBCLASS:

37.24, for a trim ring covering only.  
108.1, for hub caps.

**37.107 Each segment independently fastened to wheel:**

This subclass is indented under subclass 37.106. Subject matter wherein each portion of the facing member is individually attached to the wheel.

**37.108 Having visibility enhancing feature:**

This subclass is indented under subclass 37.101. Subject matter wherein the facing member includes a means(e.g., a light reflector or generator or certain color) to make the facing member distinctly noticeable.

SEE OR SEARCH CLASS:

362, Illumination, subclass 500 for illuminating feature on wheel covers.

**37.109 Having display means:**

This subclass is indented under subclass 37.101. Subject matter wherein the facing member includes an indicia having a identifiable form or character.

**37.11 Including adhesive:**

This subclass is indented under subclass 37.102. Subject matter wherein the attaching means includes a sticky gluey substance.

- (1) Note. The sticky gluey substance may or may not be used for permanently attaching the facing member to the wheel.

**37.12 Including compressible member (i.e., rubber):**

This subclass is indented under subclass 37.102. Subject matter wherein the attaching means includes a rubber material.

- (1) Note. A rubber material prevents vibration or provide seal between the wheel and the cover.

**37.21 With anti-theft device for wheel cover:**

This subclass is indented under subclass 37.101. Wheel combined with a member intended to make difficult unauthorized removal of the cover from the wheel.

**37.22 Tire sidewall:**

This subclass is indented under subclass 37.101. Wheel wherein the facing member comprises a member intended to cover an axially facing portion of a ground-engaging tire.

SEE OR SEARCH CLASS:

152, Resilient Tires and Wheels, subclasses 151+ for a resilient tire or for the combination of a resilient tire with only that portion of a wheel that is particularly adapted to receive a resilient tire. The combination of a detailed, nonresilient wheel with a resilient tire is in Class 301.

**37.23 Retained on wheel cover:**

This subclass is indented under subclass 37.22. Wheel wherein the facing member includes both a portion extending over the tire and a portion extending over the wheel and wherein the portion extending over the tire is attached to the portion extending over the wheel.

**37.24 Trim ring covering rim only:**

This subclass is indented under subclass 37.101. Wheel wherein the facing member is annular and is intended to cover only that portion of the wheel intended to support a tire.

**37.25 With relatively rotatable element:**

This subclass is indented under subclass 37.101. Wheel combined with an additional facing member that is permitted to turn more than 360 with respect to the first facing member.

**37.26 Including distinct central medallion:**

This subclass is indented under subclass 37.101. Wheel wherein the facing member has a first portion and a second portion attached thereto, which second portion is positioned near the axis of the wheel.

**37.27 Attached to plastic cover permanently secured to wheel:**

This subclass is indented under subclass 37.26. Wheel including a first facing member made primarily of organic polymeric material secured to the wheel so that it is not readily detachable and including a detachable central medallion.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

37.43, for a plastic wheel cover permanently secured to a wheel, generally.

**37.28 Including access door:**

This subclass is indented under subclass 37.101. Wheels wherein the facing member has an openable panel intended to allow admission to the vehicle wheel.

**37.29 Wire-spoke wheel simulating wheel cover:**

This subclass is indented under subclass 37.101. Wheel wherein the facing member is configured to appear as a wire-spoke wheel.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

9.1+, for a wire-spoke wheel having a detachable section, especially subclasses 35.56+ for such a wheel bolted to a hub, subclass 35.58 for such a wheel with single-acting mounting means, and subclass 35.59 for a wheel having a disc portion configured to appear as a wire-spoke wheel.

**37.31 Including resilient securing means:**

This subclass is indented under subclass 37.101. Wheel having a spring member intended to hold the facing member in position on the web or rim.

**37.32 Resilient securing ring on cover:**

This subclass is indented under subclass 37.31. Wheel wherein the spring member is generally annular about the wheel axis and is a component of the facing member.

- (1) Note. A spring member that extends more than 180° about the wheel axis is considered to be generally annular. Note further that the annular spring may be of irregular radii.

**37.33 Acting to bias portion of cover into engagement with wheel:**

This subclass is indented under subclass 37.32. Wheel wherein the spring member yieldably urges a portion of the basic material of the facing member into engagement with a portion of the wheel itself to hold the facing member in position thereon.

**37.34 Detachable:**

This subclass is indented under subclass 37.31. Wheel wherein the spring member is itself removable from both the wheel and the facing member.

**37.35 Wheel body or rim having integral securing bump:**

This subclass is indented under subclass 37.101. Wheel having a raised surface extending from the surface of the web of the wheel or from the rim intended to hold the facing member in position thereon.

**37.36 Bump on rim:**

This subclass is indented under subclass 37.35. Wheel having a raised surface extending from the rim.

**37.371 Including threaded means:**

This subclass is indented under subclass 37.102. Subject matter wherein the wheel includes a helically ribbed fastener to mate with the facing member or wheel and holds the facing member in position on the wheel.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

108.4, for a hub cap secured to a hub by a threaded means.

**37.372 Cover held directly by lug nuts:**

This subclass is indented under subclass 37.371. Subject matter wherein the facing member is held to the disc member through a contact with the fastener which retains the wheel to the axle.

**37.373 Cover snap-fits over lug nuts:**

This subclass is indented under subclass 37.372. Subject matter wherein the facing member includes a means to engage or force-fit over the lug nut to retain the facing member without removing the lug nut.

SEE OR SEARCH THIS CLASS, SUB-CLASS:  
35.625, for lug nut engaging wheel element.

**37.374 Lug nut cover:**

This subclass is indented under subclass 37.371. Subject matter including a member which fits over the lug nut to protect, decorate or conceal the lug nut.

SEE OR SEARCH CLASS:

411, Expanded, Threaded, Driven, Headed, Tool-deformed, or Locked-threaded fastener, subclass 371 for cap or washer for fastener.

**37.375 Nut cover retains wheel cover:**

This subclass is indented under subclass 37.374. Subject matter wherein a facing member is held to the wheel by the lug nut cover.

**37.376 Cover mounting member secured to wheel by lug nuts:**

This subclass is indented under subclass 37.371. Subject matter wherein the facing member includes additional or separate structure held to the wheel by the threaded fasteners.

**37.38 Central thread:**

This subclass is indented under subclass 37.371. Wheel wherein the helically ribbed means mates with the facing member or with the wheel about a helix coextensive with the wheel axis.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

108.5, for a hub cap secured to a hub by a central threaded means.

**37.39 Cover having integral securing teeth:**

This subclass is indented under subclass 37.101. Wheel wherein the facing member has formed therefrom sharp protuberances intended to directly engage the wheel to thereby hold the facing member in position on the wheel.

**37.41 Cover securing, wheel spoke engaging means:**

This subclass is indented under subclass 37.101. Wheel including means intended to hold the facing member in position on the wheel by engagement with a spoke of a wheel.

**37.42 Plastic cover:**

This subclass is indented under subclass 37.101. Wheel wherein the cover member is made primarily of organic polymeric material.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

108.3, for a plastic hub cap.

**37.43 Permanently secured to wheel:**

This subclass is indented under subclass 37.42. Wheel including a first facing member made primarily of organic polymeric material secured to the wheel such that it is not readily detachable.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

37.27, for a plastic wheel permanently secured to a wheel, combined with a detachable central medallion.

**38.1 Emergency:**

This subclass is indented under subclass 5.1. Wheel intended to be used only when an ordinary wheel is unavailable and intended to be used only temporarily, either to assist or to take the place of the ordinary wheel.

**39.1 Tire or rim:**

This subclass is indented under subclass 38.1. Wheel in which a tire or rim is used for emergency purposes instead of a whole wheel.

SEE OR SEARCH CLASS:

152, Resilient Tires and Wheels, subclass 152 for an emergency resilient tire; subclass 158 for a resilient tire with a filler to support the wheel, as if inflated, during an emergency; and subclasses 516-521 for a run-flat tire, i.e., a tire with an internal support.

**40.1 Traction increasing:**

This subclass is indented under subclass 39.1. Wheel wherein the emergency tire or rim is intended to increase the tractive effort of the wheel or to prevent slipping (or sluing) of the wheel from its intended direction of travel, and is readily removable from the ordinary wheel.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

41.1, for a wheel with traction-increasing provision, generally.

SEE OR SEARCH CLASS:

152, Resilient Tires and Wheels, sub-classes 208+ for a resilient tire including means to increase the traction thereof, without details of the supporting wheel other than details adapting the device for use with a resilient tire.

**40.2 Auxiliary tire mounted to one side of main wheel:**

This subclass is indented under subclass 40.1. Wheel wherein the traction increasing emergency wheel comprises a coaxial unit secondary to the main wheel, which is axially offset therefrom.

**40.3 Safety emergency tire or rim:**

This subclass is indented under subclass 39.1. Wheel with provision to function in the event of unexpected failure or the ordinary wheel.

SEE OR SEARCH CLASS:

152, Resilient Tires and Wheels, sub-classes 516 through 521 for a run-flat tire, i.e., a tire with an internal support.

**40.4 Rim clamp for securing emergency tire to rim:**

This subclass is indented under subclass 39.1. Wheel including a member intended to grip the rim to secure the emergency tire thereto.

**40.5 Cover cleated to wheel to provide smooth road surface:**

This subclass is indented under subclass 39.1. Wheel comprising a tread member intended to be temporarily secured to the wheel body and to encase the tire therein, presenting a continuous tread to the surface of the roadway.

**40.6 Auxiliary wheel movable radially into emergency position:**

This subclass is indented under subclass 38.1. Wheel comprising an auxiliary wheel having an axis parallel to that of the ordinary wheel, movable laterally to present the periphery of the wheel to the earth.

**41.1 Traction increasing:**

This subclass is indented under subclass 5.1. Wheel including provision for increasing the tractive effort thereof or for preventing slipping (or sluing) of the wheel from its intended direction of travel.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

40.1, for an emergency wheel with traction-increasing provision.

42 Wheel under subclasses 41.1+ wherein such traction-improving provision comprises a chain.

SEE OR SEARCH CLASS:

152, Resilient Tires and Wheels, sub-classes 231+ for a traction-increasing chain for a resilient tire.

305, Wheel Substitutes for Land Vehicles, subclass 19 for an endless flexible track mounted about the periphery of a wheel to completely surround such wheel and be carried thereby.

43 This subclass is indented under subclass 41.1. Wheel in which the traction-increasing provision comprises a member extending radially beyond the ground-engaging perimeter of the wheel or tire.

SEE OR SEARCH CLASS:

172, Earth Working, subclasses 540+ for rolling or rotating earth working tools with circumferentially spaced teeth, tines, blades or the like.

**44.1 Removably attached:**

This subclass is indented under subclass 43. Wheel from which the cleat is readily detached.

## SEE OR SEARCH CLASS:

172, Earth Working, subclass 556 for a rolling earth-working tool with a tooth or blade clamped to a hub face.

**44.2 Of resilient material:**

This subclass is indented under subclass 44.1. Wheel wherein the removable cleat is made of material which after deformation will return to its original configuration.

**44.3 To rim:**

This subclass is indented under subclass 44.1. Wheel wherein the cleat is readily removable from attachment to the rim of the wheel.

**44.4 To wheel body:**

This subclass is indented under subclass 44.1. Wheel wherein the cleat is readily removable from attachment to the web of the wheel.

**45** This subclass is indented under subclass 43. Wheel in which the cleat is movable with respect to its support for any purpose.

## SEE OR SEARCH CLASS:

172, Earth Working, subclass 545 for a rolling earth working tool with movable blades or teeth.

305, Wheel Substitutes for Land Vehicles, subclasses 4+ for a ground-engaging element movably secured to the rim of a wheel in the form of a stepper. Class 305 takes a device in the form of a plate pivotally secured to the rim of a wheel and adapted to extend in a plane parallel to the ground when in contact therewith to simulate the action of a foot even though the plate is provided with a ground-engaging cleat. The device of Class 305 is distinguished from that of Class 301, subclasses 45+ in that the traction-increasing device of Class 301 comprises a ground-engaging cleat which may be movably mounted on the rim of a wheel; the plate of Class 305 is adapted to simulate the action of a foot when in contact with the ground.

**46** This subclass is indented under subclass 45. Wheel wherein such movement permits adjustment by some control.

## SEE OR SEARCH CLASS:

172, Earth Working, subclass 541 and 546 for a rolling earth working tool having projecting teeth or blades and means for adjusting the teeth or blades.

**47** This subclass is indented under subclass 46. Wheel wherein the cleat is carried by a supplemental support adapted for attachment to a conventional type of wheel.

**48** This subclass is indented under subclass 46. Wheel wherein the cleat, during revolution of the wheel, is alternately projected and retracted, the projected position being at the ground-engaging position of the spur or cleat.

## SEE OR SEARCH CLASS:

172, Earth Working, subclass 546 for a rolling earth working tool with alternately projecting and retracting teeth or blades.

**49** This subclass is indented under subclass 48. Wheel wherein the cleat is carried by a supplemental support adapted for attachment to a conventional type of wheel.

**50** This subclass is indented under subclass 46. Wheel including a plurality of projecting cleats each of which is adjustable, with respect to the wheel body, independently of the other cleats.

**51** This subclass is indented under subclass 45. Wheel wherein the cleat is moved to a projected position by a spring.

## SEE OR SEARCH CLASS:

172, Earth Working, subclass 544 for a rolling earth working tool with a spring mounted tooth or blade.

305, Wheel Substitutes for Land Vehicles, subclass 5 for spring-biased elements movably mounted on the rim of a wheel forming ground-engaging feet as the wheel rotates.

**52** This subclass is indented under subclass 41.1. Wheel including two rims of substantially equal radial extent positioned near each other along a common wheel axis with a projecting, traction-improving cleat extending from one rim to the other.

- SEE OR SEARCH CLASS:  
172, Earth Working, subclasses 552+ for a rolling earth working tool having laterally extending bars supported on parallel rims.
- 53** This subclass is indented under subclass 41.1. Wheel wherein the ground-engaging portion of the wheel (other than a “tire”) is provided in its face with a series of openings or depressions to increase the tractive effort thereof.
- SEE OR SEARCH CLASS:  
172, Earth Working, subclass 534 for a rolling earth working tool with openings in the rim.
- 53.5 Wheel weight:**  
This subclass is indented under subclass 41.1. Wheel with provision to add mass thereto to increase traction.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
5.21+, for a weight used to balance a wheel.
- 54** This subclass is indented under subclass 5.1. Wheel wherein the rim and hub are connected by two means, one of which supports the load on the hub by the compression and the other by the tension of said means.
- 55** This subclass is indented under subclass 5.1. Wheel wherein the rim and hub are connected by means which supports the load on the hub by deliberately applied tension of said means.
- 56** This subclass is indented under subclass 55. Wheel wherein the supporting means are radial spokes each of which is secured at its radially inner extent to the hub at a point such that a radius from the point is normal to the axis of the spoke.
- (1) Note. A wheel may include a “wheel hub” which is detachably secured to a “bearing hub” and which is permanently attached to the radially innermost portion of the wheel body. In this subclass, the spokes comprise the wheel body and may be attached to either type of hub.
- 57** This subclass is indented under subclass 55. Wheel wherein the supporting means comprises at least a first pair of straight rodlike members under tension, which are united at one end of each.
- 58** This subclass is indented under subclass 55. Wheel including details of the point of attachment of a straight rodlike member under tension and the outer peripheral member of the wheel.
- (1) Note. A “rim” comprises an annular member of a wheel that either engages the ground directly or supports a “tire” which engages the ground. A “felly” is a single member that is less than annular which acts in conjunction with other fellyes as a rim.
- 59** This subclass is indented under subclass 55. Wheel including details of the point of attachment of a straight rodlike member under tension and the innermost member of the wheel.
- 60** This subclass is indented under subclass 59. Wheel including more than one straight rodlike member under tension and including means that is to be so manipulated that all (or substantially all) of the spokes can be shortened at the same time.
- 61** This subclass is indented under subclass 59. Wheel including a straight rodlike member under tension, and including a tubular member for receiving the rodlike member, wherein the hub is formed with a pocket for receipt of the tubular member.
- 62** This subclass is indented under subclass 5.1. Wheel in which the load carried on the hub is supported by the compression of the material of the wheel between the hub and the ground.
- (1) Note. A spoke type wheel wherein tension was not deliberately applied to the spokes is included in this subclass.
- 63.101 Disc:**  
This subclass is indented under subclass 62. Subject matter wherein the wheel includes a flat or dish shaped load-carrying portion between the rim and the hub.

SEE OR SEARCH THIS CLASS, SUB-CLASS:  
5.301, for a disc-type skate wheel.

SEE OR SEARCH CLASS:  
29, Metal Working, subclass 894 for methods of making a wheel or the parts thereof.

**63.102 Including seal or adhesive:**

This subclass is indented under subclass 63.101. Subject matter including a glueing agent between the flat or dish shaped portion and the tire supporting portion of the wheel.

**63.103 Disc welded to rim:**

This subclass is indented under subclass 63.101. Subject matter wherein the flat or dish shaped portion is rigidly joined to a tire supporting portion (i.e., rim) of the wheel by heating or pressure process (i.e., welding).

**63.104 Having means for facilitating weld:**

This subclass is indented under subclass 63.103. Subject matter wherein a portion of the disc or the rim at welding is specifically treated (i.e., modified in shape) for an efficient welded connection.

**63.105 Welded at side of rim:**

This subclass is indented under subclass 63.103. Subject matter wherein the welding is located at an upstanding side of the tire supporting portion of the wheel.

**63.106 Full face wheel disc:**

This subclass is indented under subclass 63.101. Subject matter wherein the flat or dish shaped portion of the wheel includes an exterior flange of the rim.

**63.107 Having reinforcement means:**

This subclass is indented under subclass 63.101. Subject matter wherein the flat or dish shaped portion is strengthened by changing a dish configuration (i.e., by corrugating or thickening at a portion of the flat or dish shaped portion).

**63.108 Reinforcement attached to disc:**

This subclass is indented under subclass 63.107. Subject matter wherein the flat or dish shaped portion is strengthened by rigidly connecting additional member thereto.

**63.109 Unitary with rim:**

This subclass is indented under subclass 63.101. Subject matter wherein the flat or dish shaped portion is formed as one piece with a tire supporting portion of the wheel.

**64.5 By tab struck from disc:**

This subclass is indented under subclass 64.305. Wheel wherein the first and second load-carrying, generally flat- or dish-shaped, portions are secured to each other by a flat member on one of the portions that extends into the other.

**64.101 Wheel disc having spoke formation:**

This subclass is indented under subclass 63.101. Subject matter wherein the material of the flat or dish shaped portion is shaped to simulate in form or in function the distinct spokes of a conventional spoke wheel.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

55, for a spoke wheel in which the spokes are under tension.

62, for a wheel in which the body is comprised of spokes without deliberately applied tension or under compression.

73, for a spoke wheel in which the spokes are arranged in two or more planes.

79, for a spoke wheel, generally.

**64.102 Spoke unitary with rim:**

This subclass is indented under subclass 64.101. Subject matter wherein the spoke formation is made as one piece with a tire supporting portion of the wheel.

**64.201 Plural axially spaced disc members:**

This subclass is indented under subclass 64.101. Subject matter wherein the flat or dish shaped load carrying portion between the rim and hub of the spoke wheel comprises two or more axially arranged load-carrying portions between the rim and hub and fastened to each other.



**64.202 Discs members removably joined:**

This subclass is indented under subclass 64.201. Subject matter wherein the two separate load-carrying portions of the spoke wheel are fastened to each other by removable fasteners.

**64.203 Disc members unitary with rim portion:**

This subclass is indented under subclass 64.201. Subject matter wherein the load-carrying portions of the spoke wheel are each formed as one piece with a part of the rim.

**64.301 Plural disc members:**

This subclass is indented under subclass 63.101. Subject matter wherein the disc is made of more than one flat or dish shaped load-carrying portions of the wheel.

**64.302 Plural axially spaced disc members:**

This subclass is indented under subclass 64.301. Subject matter wherein the flat or dish shaped load-carrying portion of the wheel between the rim and the hub comprises two or more axially arranged load-carrying portions between the rim and hub and fastened to each other.

**64.303 Disc members unitary with rim:**

This subclass is indented under subclass 64.302. Subject matter wherein the rim of the wheel is a part of the two separate load-carrying portions.

**64.304 Disc members configured to retain rim:**

This subclass is indented under subclass 64.302. Subject matter wherein the two separate load-carrying portions together are shaped to receive the rim.

**64.305 Disc members removably joined:**

This subclass is indented under subclass 64.302. Subject matter wherein the two separate load-carrying portions are removably fastened to each other.

**64.306 Including intermediate material or member between disc members:**

This subclass is indented under subclass 64.302. Subject matter wherein additional or separate element or filler is disposed between two separate flat or dish shaped load-carrying portions of the wheel.

**64.307 Made of plural sections:**

This subclass is indented under subclass 63.101. Subject matter wherein a single flat or dish shaped load-carrying portion is made of two or more members joined at radial or circumferential edges.

**64.6 Of fabric, wood or paper:**

This subclass is indented under subclass 63.101. Wheel made primarily of (1) woven textile, (2) naturally occurring cellulose, or (3) solidified cellulose pulp.

**64.701 Of plastic:**

This subclass is indented under subclass 62. Subject matter wherein the material of the wheel between the hub and the ground(i.e., rim) is primarily an organic polymer.

(1) Note. A wheel of rubber is included in this subclass.

**SEE OR SEARCH CLASS:**

264, Plastic or Nonmetallic Article Shaping or Treating: Processes, appropriate subclasses for processes of shaping or treating of plastic articles.

**64.702 Composite:**

This subclass is indented under subclass 64.701. Subject matter wherein the wheel is made of more than one different materials at least one of which is polymeric.

**64.703 Reinforced:**

This subclass is indented under subclass 64.702. Subject matter wherein another substance is added or a separate member is attached to at least one of the wheel materials for strengthening the wheel.

**64.704 Spoked:**

This subclass is indented under subclass 64.701. Subject matter wherein the wheel is shaped to simulate in form a plurality of rod or brace like radial members extending between the hub and the rim.

**64.705 Hollow or filled:**

This subclass is indented under subclass 64.704. Subject matter wherein the spoke member has a space or cavity within or the space or cavity is filled with a material.

**64.706 Two halves joined together:**

This subclass is indented under subclass 64.701. Subject matter wherein the wheel disc is made of two structurally mating members of same or different materials secured together by fasteners or welding or such similar method.

**64.707 Disc forms integral ground engaging portion:**

This subclass is indented under subclass 64.701. Subject matter wherein the wheel disc is so manufactured that a perimeter portion of the wheel disc forms a rolling surface which touches the ground.

**65** This subclass is indented under subclass 62. Wheel in which the wheel as a whole or a substantial whole is formed of metal by casting.

**66** This subclass is indented under subclass 62. Wheel where two or more spokes are integrally connected.

**67** This subclass is indented under subclass 62. Wheel including details of the point of attachment of a straight rodlike supporting member under compression and the outer peripheral member of the wheel.

(1) Note. A “rim” comprises an annular member of a wheel that either engages the ground directly or supports a “tire” which engages the ground. A “felly” is a single member that is less than annular which acts in conjunction with other fellyes as a rim.

**68** This subclass is indented under subclass 67. Wheel in which such connecting means is adjustable.

**69** This subclass is indented under subclass 68. Wheel in which such adjustment is accomplished by screw means.

**70** This subclass is indented under subclass 67. Wheel including a straight rodlike member between the hub and the rim (or felly) under compression, and including a tubular member for receiving the rodlike member, wherein the rim is formed with a pocket for receipt of the tubular member.

**71** This subclass is indented under subclass 70. Wheel wherein the separate spoke-pocket also functions to secure the adjacent ends of a felly together.

**72** This subclass is indented under subclass 67. Wheel where the felly and spoke connection is also a joint between adjacent ends of a felly.

**73** This subclass is indented under subclass 62. Wheel formed of two or more series of spokes arranged in different planes.

**74** This subclass is indented under subclass 73. Wheel including means for connecting the spokes to the hub.

**75** This subclass is indented under subclass 74. Wheel in which connection is such that it permits manipulation to tighten a spoke on the wheel.

**76** This subclass is indented under subclass 74. Wheel wherein a spoke is forced into a socket formed in the hub.

**77** This subclass is indented under subclass 76. Wheel wherein the hub is reinforced by a band or casing adjacent to the socket receiving the spoke.

SEE OR SEARCH THIS CLASS, SUBCLASS:

106, for a hub-reinforcing band or casing, generally.

**78** This subclass is indented under subclass 74. Wheel in which the hub is formed in sections adapted to clamp the end of the spoke therebetween.

**79** This subclass is indented under subclass 62. Wheel wherein the spokes of the wheel are formed in a single series in the same plane.

**80** This subclass is indented under subclass 79. Wheel including details of the point of attachment of a straight radial rodlike wheel body member under compression and the radially innermost member of the wheel.

- 81** This subclass is indented under subclass 80. Wheel in which the connection is such that it permits manipulation to tighten a spoke on the wheel.
- 82** This subclass is indented under subclass 80. Wheel wherein a spoke is forced into a socket formed in the hub.
- 83** This subclass is indented under subclass 82. Wheel wherein the hub is reinforced by a band or casing adjacent to the sockets for receiving the spoke.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
106, for a hub-reinforcing band or casing, generally.
- 84** This subclass is indented under subclass 80. Wheel in which the hub is formed in sections adapted to clamp the end of the spoke therebetween.
- 85** This subclass is indented under subclass 84. Wheel in which the ends of a plurality of spokes are clamped by the hub and are so arranged relative to each other that their inner ends form a continuous ring.
- 86** This subclass is indented under subclass 5.1. Wheel including a particular ground-engaging means distinct from the body or rim which means is annular and is not intended to yield under compressive load when in engagement with the ground.
- (1) Note. A nonresilient tire, per se, to be used on a wheel is included herein.
- SEE OR SEARCH CLASS:  
152, Resilient Tires and Wheels, subclasses 151+ for a tire that is intended to yield under compressive load when in engagement with the ground.
- 87** This subclass is indented under subclass 86. Wheel particularly related to means for securing the tire to a conventional part of the wheel.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
11.1+, for means to secure a demountable rim to the other portions of a vehicle wheel.
- 88** This subclass is indented under subclass 87. Wheel wherein the fastening means also functions to join the adjacent ends of felly-sections.
- 89** This subclass is indented under subclass 87. Wheel wherein the securing means comprises a filler member that is either (1) a tapered or (2) a relatively thin plate, intended to fit between adjacent wheel elements to effect securement of the tire.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
19+, for similar means for securing a demountable rim to the other components of a wheel.
- 90** This subclass is indented under subclass 86. Wheel wherein the tire is provided with means to raise the wheel out of a streetcar track.
- 91** This subclass is indented under subclass 86. Wheel wherein the length of the tire is adjustable.
- 92** This subclass is indented under subclass 91. Wheel wherein the adjusting means is operated by a screw-threaded element.
- 93** This subclass is indented under subclass 92. Wheel wherein the screw is provided at opposite ends with right and left hand threads.
- 94** This subclass is indented under subclass 91. Wheel wherein the adjusting means is a wedge.
- 95.101 Rim:**  
This subclass is indented under subclass 5.1. Subject matter including that portion of a wheel which is radially outward of the load-carrying portions upon which a tire is seated.
- (1) Note. A 'rim' comprises an annular member of a wheel that either engages the ground directly or supports a 'tire' which engages the ground. A 'felly' is a portion of a rim between the rim flanges.

- (2) Note. A rim or felly, per se, to be used on a wheel is included in this subclass.
- SEE OR SEARCH CLASS:  
29, Metal Working, subclass 894.35 for processes of making a wheel rim.
- 95.102 Composite:**  
This subclass is indented under subclass 95.101. Subject matter wherein the rim is made of two or more distinct materials.
- 95.103 Laminated:**  
This subclass is indented under subclass 95.102. Subject matter wherein the rim is made of two or more distinct layers.
- 95.104 Having annular chamber:**  
This subclass is indented under subclass 95.101. Subject matter wherein the rim includes a continuous hollow space formed integrally or by joining a separate member to the rim.
- 95.105 Formed by folded rim portion:**  
This subclass is indented under subclass 95.104. Subject matter wherein the annular chamber is formed by folding a part of the rim or felly on top of another part.
- 95.106 Formed by plural concentric rim portions:**  
This subclass is indented under subclass 95.104. Subject matter wherein the annular chamber of the rim is formed by joining two or more separate members arranged one within the other having a common center.
- 95.107 Including reinforcing:**  
This subclass is indented under subclass 95.101. Subject matter wherein the rim or felly is strengthened.
- 95.108 By thickening rim portion:**  
This subclass is indented under subclass 95.107. Subject matter wherein the thickness of a portion of the rim or felly is increased to strengthen the rim or felly.
- 95.109 Having dissimilar tire bead supports:**  
This subclass is indented under subclass 95.101. Subject matter wherein portions of the rim or felly where tire beads are supported have different shapes or dimensions.
- 95.11 Made of plural sections:**  
This subclass is indented under subclass 95.101. Subject matter wherein the rim or felly is made of two or more distinct members.
- 99** This subclass is indented under subclass 95.101. Wheel with particular reference to structure for joining the adjacent ends of felly-sections.
- 100** This subclass is indented under subclass 99. Wheel wherein such joint is adjustable, usually to tighten the wheel due to wear.
- 101** This subclass is indented under subclass 100. Wheel wherein the adjustment is accomplished by a screw-threaded element.
- 102** This subclass is indented under subclass 101. Wheel wherein the screw element is provided at opposite ends with right and left handed threads.
- 103** This subclass is indented under subclass 100. Wheel wherein the adjusting means is a wedge.
- 104** This subclass is indented under subclass 5.1. Wheel comprising the portion of a wheel extending between the hub and the rim or tire, which portion includes a rodlike generally radially extending member.
- (1) Note. A spoke, per se, to be used on a wheel is included herein.
- 105.1 Hub:**  
This subclass is indented under subclass 5.1. Wheel comprising the radially innermost portion of the wheel, i.e., the portion at the axis thereof.
- (1) Note. A hub, per se, to be used on a wheel is included herein.
- 106** This subclass is indented under subclass 105.1. Wheel including a band or a casing adapted to surround and reinforce the hub.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
77, for a plural spoke series wheel having a hub reinforcing band or casing adjacent the sockets for the spokes.

- 83, for a single spoke series wheel having a hub reinforcing band or casing adjacent the sockets for the spokes.
- 107** This subclass is indented under subclass 106. Wheel having a band which extends beyond and gives a finish to the outer end of the hub.
- 108.1 Hub cap:**  
This subclass is indented under subclass 105.1. Wheel including a member which engages and covers an exposed axial end of a wheel hub.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
37.101, for a facing member which covers a more substantial portion of a wheel than the hub.
- SEE OR SEARCH CLASS:  
40, Card, Picture, or Sign Exhibiting, subclass 587 for an ornamental or sign-carrying member adapted to be attached to the wheel or axle of a land vehicle which does not rotate when the vehicle is in motion.  
220, Receptacles, subclasses 200+ and see the notes thereto for a receptacle closure in general.
- 108.2 Having transparent window:**  
This subclass is indented under subclass 108.1. Wheel wherein a portion of the hub cap is clear so that light may pass through.
- 108.3 Plastic hub cap:**  
This subclass is indented under subclass 108.1. Wheel wherein the cover member is made primarily of organic polymeric material.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
37.42, for a plastic wheel cover.
- 108.4 Retained by threaded means:**  
This subclass is indented under subclass 108.1. Wheel including a helically ribbed fastener used to secure the hub cap to the hub.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
37.371, for a wheel cover secured to a wheel by a threaded means.
- 108.5 Central-threaded means:**  
This subclass is indented under subclass 108.4. Wheel wherein the threaded means is concentric with the wheel axis.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
37.38, for a wheel cover secured to a wheel by a central threaded means.
- 109** This subclass is indented under subclass 105.1. Wheel having means secured to the hub comprising a bearing for the wheel on the axle.
- 110** This subclass is indented under subclass 109. Wheel having means for securing the bearing in the hub.
- 110.5 For cycle-type vehicle:**  
This subclass is indented under subclass 6.1. Wheel particularly adapted to use on a two or three wheel bicycle or motorcycle.
- 110.6 Circumferentially divided:**  
This subclass is indented under subclass 110.5. Wheel including a hub that is made of two pieces that are axially distinct from each other.
- 111.01 Device for attaching wheel to axle:**  
This subclass is indented under subclass 5.1. Subject matter includes means for securing the wheel to an axle or similar part of the vehicle.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
35.621, for specific lug bolt or lug nut arrangement or structure.
- SEE OR SEARCH CLASS:  
280, Land Vehicles, subclass 29 for wheels attached to a specific vehicle.  
295, Railway Wheels and Axles, subclass 43 for a similar device for a railway wheel.  
411, Expanded, Threaded, Driven, Headed, Tool-Deformed, or Locked-Threaded Fastener, subclass 337 for a threadless bolt fastener of general application.
- 111.02 Including splines:**  
This subclass is indented under subclass 111.01. Subject matter wherein the securing means includes a tooth like interengagement

- between the axle and the wheel to prevent relative rotation.
- 111.03 For attaching hub to axle:**  
This subclass is indented under subclass 111.01. Subject matter including means for securing a central portion of the wheel to the axle.
- 111.04 Adaptor for mounting wheel to axle:**  
This subclass is indented under subclass 111.01. Subject matter having an additional member which facilitates the attachment of the wheel to the axle.
- 111.05 Vehicle housing with means to receive wheel or axle:**  
This subclass is indented under subclass 111.01. Subject matter wherein a body of a vehicle includes means for supporting the wheel or axle.
- 111.06 Vehicle leg or extension to receive axle:**  
This subclass is indented under subclass 111.01. Subject matter wherein the axle is supported on an extended part of the vehicle.
- 111.07 Device includes two distinct retainer elements:**  
This subclass is indented under subclass 111.01. Subject matter wherein the wheel securing means includes a pair of members to keep the wheel fixed to the axle.
- 112** This subclass is indented under subclass 111.01. Wheel having detachable means secured to the axle and engaging against the outer face of the wheel hub.
- SEE OR SEARCH CLASS:  
295, Railway Wheels and Axles, subclasses 49+ for a similar device for a railway wheel.
- 113** This subclass is indented under subclass 112. Wheel in which the end stop is or is held in place by a transversely extending rod, e.g., a cotter pin, passing diametrically through the wheel axis.
- SEE OR SEARCH CLASS:  
295, Railway Wheels and Axles, subclass 50 for a similar device for a railway wheel.
- 114** This subclass is indented under subclass 112. Wheel wherein the outer end stop is secured to the axle by screw means.
- 115** This subclass is indented under subclass 114. Wheel wherein the outer end stop is a plural part nut, one part of which is adjustable to lengthen the nut to take up wear in the bearing.
- 116** This subclass is indented under subclass 114. Wheel having a construction of the hub adapted for manipulation to engage the screw out end stop, so that by rotation of the wheel the screw-stop is disengaged from the axle.
- 117** This subclass is indented under subclass 114. Wheel in which the screw means is a bolt engaging a threaded hole in the end of the axle.
- 118** This subclass is indented under subclass 112. Wheel wherein the outer end stop is secured to the axle by a bayonet-joint connection.
- 119** This subclass is indented under subclass 112. Wheel wherein the outer end stop is secured to the axle by pivoted detent.
- 120** This subclass is indented under subclass 112. Wheel wherein the outer end stop is secured to the axle by a sliding detent.
- 121** This subclass is indented under subclass 111.01. Wheel wherein a movable-latch detent secured to either the wheel or the axle is adapted to engage the other to hold both elements assembled.
- 122** This subclass is indented under subclass 111.01. Wheel wherein a removable collar or sleeve on either the wheel or the axle is adapted, when assembled, to engage a stop on the other.
- 123** This subclass is indented under subclass 5.1. Wheel for attachment to either the wheel or the axle and cooperating with the other for excluding dust, sand, and dirt from the wheel and axle bearing.

## SEE OR SEARCH CLASS:

- 277, Seal for a Joint or Juncture, for a generic sealing means or process, subclasses 500+ for a dynamic, circumferential, contact seal for other than a piston.
- 384, Bearings, subclass 157, 262 and 460, where means are provided to exclude dust, etc., from the bearing.

**124.1 AXLE:**

This subclass is indented under the class definition. Structure relating to the structure for rotatably supporting a wheel on a vehicle.

- (1) Note. A combination of axle structure and the mounting thereof upon a vehicle is beyond the scope of Class 301. As set forth in the (1) and (2) Notes of the class definition, Class 301 is subordinate to either Class 180, Motor Vehicles, or Class 280, Land Vehicles.

## SEE OR SEARCH CLASS:

- 180, Motor Vehicles, appropriate subclasses for an axle mounted upon a self-propelled vehicle. Note the criteria specified in Class 180 definition for determining whether the self-propelled vehicle is proper for this class (Class 180). Class 180 is superior to Class 280 in the class hierarchy.
- 280, Land Vehicles, appropriate subclasses for a general utility wheeled land vehicle, especially subclasses 80.1+ for particular running gear construction or subclasses 274+ or 281.1+ for an occupant propelled type wheeled land vehicle (it is noted that in accordance with the (2) Note of Class 280, subclass 200, motorcycle frames and running gear, without features causing classification in Class 180, Motor Vehicles, are included in these subclasses).
- 295, Railway Wheels and Axles, subclasses 36.1+ for an axle under that definition.
- 464, Rotary Shafts, Gudgeons, Housings, and Flexible Couplings for Rotary Shafts, subclasses 179+ for a rotary torque transmitting shaft.

**124.2 With distinct handle to effect mounting on cycle-type vehicle:**

This subclass is indented under subclass 124.1. Axle combined with means to attach the bearing hub of a wheel to an axle, which means is intended to be grasped by the hand of an operative and comprises a different member from the axle or the bearing hub.

- (1) Note. A nut having a portion extending therefrom is included herein if the portion is movable with respect thereto.

**125** This subclass is indented under subclass 124.1. Axle modified for cooperation with structure which performs other vehicle function.

**126** This subclass is indented under subclass 124.1. Axle which as a whole or in part rotates, the wheel being fixed to rotate therewith.

**127** This subclass is indented under subclass 124.1. Axle which is substantially offset from a straight line by bowing or by forming cranked portions therein.

**128** This subclass is indented under subclass 124.1. Axle which is adjustable to increase or decrease its length.

## SEE OR SEARCH CLASS:

- 180, Motor Vehicles, subclass 209 for a self-propelled vehicle of "special wheel base" construction wherein the location or number of supporting wheels may be altered. See Class 180, subclass 21 definition for the meaning attributed to "special wheel base".
- 280, Land Vehicles, subclass 149.1 for a general utility wheeled land vehicle running gear having interchangeable axles or subclasses 638+ for a general utility wheeled land vehicle including means to alter a dimension of the vehicle or a part thereof.

**129** This subclass is indented under subclass 124.1. Axle which is trussed by braces to increase its strength.

**130** This subclass is indented under subclass 124.1. Axle for emergency-repairing of a broken axle.

- 131** This subclass is indented under subclass 124.1. Axle including a terminal member distinct from the portion of the axle that extends under and engages the vehicle proper, which member is generally rodlike, is at the wheel axis, supports the wheel (bearings) directly, and is, in turn, supported by the vehicle-engaging portion of the axle.

**SEE OR SEARCH CLASS:**

- 180, Motor Vehicles, appropriate subclasses for a spindle axle mounted upon a self-propelled vehicle wherein the spindle axle is either (a) driven, (b) driven and steered, or (c) steered by a power assisting steering system. Note the criteria specified in Class 180 definition for determining whether the self-propelled vehicle is proper for this class (Class 180). Class 180 is superior to Class 280 in the class hierarchy.
- 280, Land Vehicles, subclasses 124.125+ for particular running gear construction separately supporting a wheel upon an individual stub axle.

- 132** This subclass is indented under subclass 131. Spindle including particular provision for attaching such spindle to the vehicle-engaging portion of the axle.

- 133** This subclass is indented under subclass 132. Spindle wherein such mounting means includes a member intended to yield within its elastic limit to support the wheel relative to the vehicle, while allowing relative movement (in addition to rotary movement) with respect thereto.

- 134** This subclass is indented under subclass 124.1. Axle including a terminal member distinct from the portion of the axle that extends under and engages the vehicle proper, which member is generally cuplike, is at the wheel axis, supports the wheel (bearings) directly, and is, in turn, supported by the vehicle-engaging portion of the axle over which the cuplike top fits.

**SEE OR SEARCH CLASS:**

- 180, Motor Vehicles, appropriate subclasses for a skein axle mounted upon a self-propelled vehicle wherein the

skein axle is either (a) driven, (b) driven and steered, or (c) steered by a power assisting steering system. Note the criteria specified in Class 180 definition for determining whether the self-propelled vehicle is proper for this class (Class 180). Class 180 is superior to Class 280 in the class hierarchy.

- 280, Land Vehicles, subclasses 124.125+ for particular running gear construction separately supporting a wheel upon an individual stub axle.

- 135** This subclass is indented under subclass 134. Skein including particular provision for attaching such skein to the vehicle-engaging portion of the axle.

- 136** This subclass is indented under subclass 135. Skein wherein such mounting means includes a member intended to yield within its elastic limit to support the wheel relative to the vehicle, while allowing relative movement (in addition to rotary movement) with respect thereto.

- 137 Including housing for drive mechanism:**  
This subclass is indented under subclass 124.1. Axle of a type intended to have means to transmit rotary force to the wheel supported thereon including particular provision to encase such means.

**SEE OR SEARCH CLASS:**

- 180, Motor Vehicles, subclasses 337+ for a self-propelled land vehicle including a transmission mechanism. Note the criteria specified in Class 180 definition for determining whether the self-propelled vehicle is proper for this class (Class 180). Class 180 is superior to Class 280 in the class hierarchy.
- 280, Land Vehicles, subclass 124.156 for a particular running gear construction supporting a "live" axle.

**END**